

WHAT IS CLAIMED IS:

1. A method for improving the adhesion properties and switching performance of an electrophoretic display, which method comprises (a) applying a lamination adhesive to a component of said electrophoretic display, or (b) sealing display cells with a sealing composition, wherein said lamination adhesive or sealing composition comprises a high dielectric polymer or oligomer, a radically or photochemically graftable polymer, and optionally a crosslinking agent.
2. The method of Claim 1 wherein said polymer or oligomer has a dielectric constant in the range of about 3.5-17.
3. The method of Claim 2 wherein said polymer or oligomer has a dielectric constant in the range of about 6-15.
4. The method of Claim 1 wherein said polymer or oligomer is a polyurethane, polyurea, polycarbonate, polyamide, polyester, polycaprolactone, polyvinyl alcohol, polyether, polyvinyl acetate derivative, polyvinyl fluoride, polyvinylidene fluoride, polyvinyl butyral, polyvinylpyrrolidone, poly(2-ethyl-2-oxazoline), high-acid-number acrylic or methacrylic polymer or copolymer, gum Arabic, alginate, lecithin or polymer derived from an amino acid.
5. The method of Claim 4 wherein said polymer or oligomer comprises a functional group for chain extension or crosslinking.
6. The method of Claim 4 wherein said polymer or oligomer is selected from the group consisting of polyurethanes, polyureas, polycarbonates, polyesters and polyamides.
7. The method of Claim 6 wherein said polymer or oligomer comprises a functional group selected from the group consisting of -OH, -SH, -NCO, -NCS, -NHR, -NRCONHR, -NRCSNHR, vinyl, epoxide and derivatives thereof, wherein R is hydrogen, alkyl, aryl, alkylaryl or arylalkyl.
8. The method of Claim 7 wherein said polymer or oligomer is a functionalized polyurethane.

9. The method of Claim 8 wherein said functionalized polyurethane is hydroxyl terminated polyester polyurethane or polyether polyurethane, isocyanate terminated polyester polyurethane or polyether polyurethane or acrylate terminated polyester polyurethane or polyether polyurethane.

10. The method of Claim 9 wherein said functionalized polyurethane is a hydroxyl terminated polyester polyurethane.

11. The method of Claim 10 wherein said hydroxyl terminated polyester polyurethanes is selected from the IROSTIC series.

12. The method of Claim 1 wherein said graftable polymer is a cellulose derivative or a polyvinyl alcohol derivative.

13. The method of Claim 12 wherein said cellulose is cellulose acetate butyrate, cellulose acetate propionate, hydroxypropyl cellulose, hydroxybutyl cellulose, hydroxyethyl cellulose, methyl cellulose, carboxymethyl cellulose, or a copolymer thereof.

14. The method of Claim 12 wherein said polyvinyl alcohol derivative is polyvinyl acetal, polyvinyl butyral, or a copolymer thereof.

15. The method of Claim 1 wherein said graftable polymer is cellulose acetate, cellulose acetate butyrate, cellulose acetate propionate, polyvinyl acetal or a copolymer thereof.

16. The method of Claim 1 wherein said graftable polymer is present in an amount of about 5% to about 30% by weight of the high dielectric polymer or oligomer.

17. The method of Claim 16 wherein said graftable polymer is present in an amount of about 10% to about 20% by weight of the high dielectric polymer or oligomer.

18. The method of Claim 1 wherein said lamination adhesive or sealing composition further comprising a photoinitiator.

19. The method of Claim 18 wherein said photoinitiator is benzophenone, ITX (isopropyl thioxanthone), BMS (4(p-tolylthio)benzophenone), Irgacure 651 (2,2-dimethoxy-1,2-diphenylethane), 907 (2-methyl-1-[4-(methylthio)phenyl]-2-morpholino-1-propanone), 369 (2-benzyl-2-(dimethylamino)-1-[4-(4-morpholinyl)phenyl]-1-butanone) or 184 (1-hydroxycyclohexylphenylketone).

20. The method of Claim 18 wherein said photoinitiator is present in an amount of about 0.5% to about 5% by weight based on the total weight of the high dielectric polymer or oligomer and the graftable polymer.

21. The method of Claim 20 wherein said photoinitiator is present in an amount of about 1% to about 3% by weight based on the total weight of the high dielectric polymer or oligomer and the graftable polymer.

22. The method of Claim 1 wherein said crosslinking agent is a multifunctional isocyanate.

23. The method of Claim 22 wherein said multifunctional isocyanate is an aliphatic polyisocyanate.

24. The method of Claim 23 wherein said aliphatic polyisocyanate is Desmodur N-100 (from Bayer) or Irodur E-358 (from Huntsman Polyurethane).

25. The method of Claim 1 further comprising a catalyst when the crosslinking agent is present.

26. The method of Claim 25 wherein said catalyst is selected from the group consisting of organotin catalysts, organozirconium catalysts and bismuth catalysts.

27. The method of Claim 26 wherein said organotin catalyst is dibutyltin dilaurate.

28. A composition for adhesion or sealing the display cells of an electrophoretic display comprising a high dielectric polymer or oligomer, a radically or photochemically graftable polymer and optionally a crosslinking agent.

29. The composition of Claim 28 wherein said polymer or oligomer is a hydroxyl terminated polyester polyurethane, hydroxyl terminated polyether polyurethane, isocyanate terminated polyester polyurethane, isocyanate terminated polyether polyurethane, acrylate terminated polyester polyurethane, or acrylate terminated polyether polyurethane.

30. The composition of Claim 28 wherein said polymer or oligomer is a hydroxyl terminated polyester polyurethane.

31. The composition of Claim 30 wherein said hydroxyl terminated polyester polyurethanes is selected from the IROSTIC series.

32. The composition of Claim 28 wherein said graftable polymer is a cellulose derivative or a polyvinyl alcohol derivative.

33. The composition of Claim 32 wherein said cellulose is cellulose acetate butyrate cellulose acetate propionate, hydroxypropyl cellulose, hydroxybutyl cellulose, hydroxyethyl cellulose, methyl cellulose, carboxymethyl cellulose, or a copolymer thereof.

34. The composition of Claim 32 wherein said polyvinyl alcohol derivative is polyvinyl acetal, polyvinyl butyral, or a copolymer thereof.

35. The composition of Claim 28 wherein said graftable polymer is cellulose acetate, cellulose acetate butyrate, cellulose acetate propionate, polyvinyl acetal or a copolymer thereof.

36. The composition of Claim 28 wherein said crosslinking agent is a multifunctional isocyanate.

37. The composition of Claim 28 further comprising a catalyst when the crosslinking agent is present.

38. The composition of Claim 37 wherein said catalyst is an organotin catalyst.

39. The method of Claim 1 wherein said electrophoretic display is prepared using the microcup technology.

41. An electrophoretic display comprising an electrode protecting layer which comprises a high dielectric polymer or oligomer, a graftable polymer and optionally a crosslinking agent.

42. The electrophoretic display of Claim 41 which is prepared using the microcup technology.